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Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/578,632

Filing Date: May 09, 2006

Appellant(s): GARG ET AL.

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W. Brinton Yorks, Jr.  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed June 18<sup>th</sup>, 2010 appealing from the Office action mailed January 26<sup>th</sup>, 2010.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

Claims 1, 3-11 and 13-19.

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

### **(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

### **(8) Evidence Relied Upon**

5,720,291	Schwartz	2-1998
6,171,246	Averkiou et al	1-2001

### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 3-11 and 13-19 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz (5,720,291) in view of Averkiou et al (6,171,246).

Regarding claims 1, 3, 4, 10, 11 and 14-19, Schwartz discloses a method of simultaneously displaying a two or three dimensional parametric perfusion image and an anatomical structural image of the region of interest corresponding to the parametric perfusion image on an ultrasonic image display, comprising: an image processor and acquiring an anatomical structural image of a region of interest of a subject comprising tissue containing blood flow; and displaying the parametric perfusion image in anatomical registration with the anatomical structural image (abstract; col.2, ll.9-24), wherein the relative opacity of the registered parametric image and anatomical structural image is variable over a range of relative opacities (col.3, ll.43-49); a display coupled to the source of images and the parametric perfusion image processor; a display processor coupled to the display; and a user control coupled to the display processor; and wherein the user control further comprises a plurality of separate user controls by which a user can set the opacity of the parametric image and the registered diagnostic image (col.2, ll.9-24; col.3, ll.43-49, ll.62-65; col.4, ll.58-61; claim 17). Schwartz fails to disclose a contrast signal processor; a parametric perfusion image processor and acquiring harmonic signal components from a harmonic contrast agent in the region of interest of the subject; and processing harmonic signal components of

corresponding locations in a sequence of images to form a parametric image of a perfusion characteristic of the tissue of the region of interest.

However, Averkiou et al teach in the same medical field of endeavor, acquiring harmonic signal components from a harmonic contrast agent in the region of interest of the subject; and processing harmonic signal components of corresponding locations in a sequence of images to form a parametric image of a perfusion characteristic of the tissue of the region of interest (abstract; col.1, ll.9-28; col.2, ll.8-32).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of registering an anatomical structural image and a parametric perfusion image with acquiring and processing harmonic signal components. Doing so would provide enhanced imaging of perfused tissue.

Regarding claims 5 and 6, Schwartz discloses the invention substantially as claimed but fails to disclose varying the relative opacity of the registered parametric image and anatomical flow image in a continuous manner as well as in a stepwise manner.

However, Schwartz teaches a user entering rendering parameters by means of a user interface in which each type of image information will be processed including opacity values (col.4, ll.51-65).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the user control of Schwartz to include varying the relative opacity of the registered parametric image and anatomical flow image in a continuous manner as

well as in a stepwise manner. Doing so would provide viewing of characteristic of both parametric and anatomical flow images, or at varying opacities as desired.

Regarding claims 7-9, Schwartz discloses wherein varying the relative opacity further comprises varying the opacity within a range extending from an opaque anatomical image and a transparent parametric image; to an opaque anatomical image overlaid with an opaque parametric image; to a transparent anatomical image and an opaque parametric image; and within a range which includes an opacity setting in which a translucent parametric image is shown in registration with a substantially opaque anatomical image (col.3, ll.44-47; col.4, ll.63-65).

Regarding claim 13, Schwartz discloses the invention substantially as claimed but fails to disclose wherein the display processor further comprises an opacity processor which acts to set the relative opacity of the registered diagnostic image and parametric image within a range varying from an opaque diagnostic image and a transparent parametric image; to an opaque diagnostic image overlaid with an opaque parametric image; to a transparent diagnostic image and an opaque parametric image; and a user can set the relative opacity of the images to one of a discrete number of relative opacity settings.

However, Schwartz teaches the user ability to enter values for the opacity and contrast to be imparted to each type of image information (col.4, ll.58-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify display processor of Schwartz to include an opacity processor.

Doing so would provide the ability to make automatic changes in opacity of the data types in order to enhance data contrast.

**(10) Response to Argument**

I. Claims 1, 3-11 and 13-19: Schwartz in view of Averkiou et al.

Appellant contends that the prior arts of record do not disclose two-dimensional imaging. Schwartz discloses producing three-dimensional images which inherently include two-dimensional images (col.2, ll.10-12). Appellant further contends that Schwartz as modified by Averkiou et al fail to disclose that the two images, the perfusion image and the structural image, are two different images of the same region of interest and displaying the two different images of the same region in anatomical registration so that the clinician can view one image of the region or the other, or fade from one to the other with an opacity control while maintaining the same impression of the anatomical correlation of the two images. Examiner's position is that Schwartz discloses acquiring a set of structural images (tissue data set) and a set of parametric perfusion images (blood flow data set), wherein the structural images and the parametric perfusion images, which spatially correspond, are overlapped to form a composite image of a region of interest (common region of the body) and three-dimensionally displayed (col.2, ll.9-24), and including an opacity control for the structural image and an opacity control for the parametric image in a composite image to provide selected viewing of each of the images within the composite image (col.3, ll.43-49).

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/ROCHELLE REARDON/

Examiner, Art Unit 3737

Conferees:

/BRIAN CASLER/

Supervisory Patent Examiner, Art Unit 3737

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